

PRESENTS

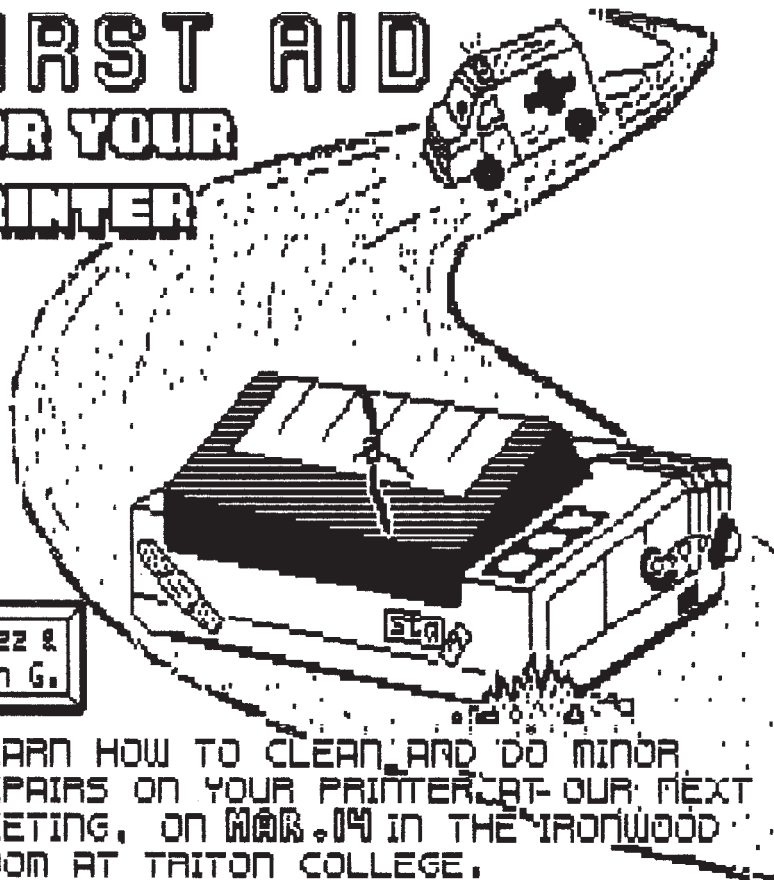
CHICAGO TIMES

NEWSLETTER OF THE CHICAGO II-99/4A USERS GROUP

CALL THE GROUP HOT-LINE NUMBER
312-657-1093

FEBRUARY, 28, 1987
EDITOR: Carole Goldstein

FIRST AID FOR YOUR PRINTER



LEARN HOW TO CLEAN AND DO MINOR
REPAIRS ON YOUR PRINTER AT OUR NEXT
MEETING, ON MAR. 14 IN THE IRONWOOD
ROOM AT TRITON COLLEGE.



Number 1

McCann Software News

January 1987

VERSION 2.00 IS HERE !!

THE PRINTER'S APPRENTICE version 2.00 includes the following new features.

1. No more messy file specifications to deal with. Easier to get RESULTS
2. FORMATTER has an integral text editor with word-wrap for instant text creation and graphics text printing with no files needed.(still can use files too)
3. We simplified both the FORMATTER and SCHEDULER user interface resulting in a more useable and powerful program.
4. SCHEDULER allows composite text and graphics images to be saved to disk.(EXTRN)
5. SCHEDULER is now smarter, no empty print passes result in faster output.
6. A configuration program allows default printer name and screen colors to be set up.

We took a powerful program and made it easier and even more powerful. We listened to both our friends and critics and included as many changes and new features as possible into TPA V2.00.

FONTS BY CYNTHIA

TPA Acapulco (ou)

TPA AMERICANA

TPA Bold TPA Bold

TPA CLARE UC

TPA OU ENGRAVE ENGRAVE

TPA OU NLQ OU NLQ TPA OU

TPA (ou) Pipeline TPA

TPA UNIVERSITY

TPA gives you the tools to create pages like this ad. Included are a character editor to make custom fonts, a picture editor to create or edit "artist" pictures, a text formatter that does hyphenation, microjustification and includes a text editor, finally, an electronic paste-up program called the SCHEDULER which puts it all together, like we did here.

For our friends who own an earlier version of TPA we offer an upgrade to V2.00 including version documents for \$3.00 if you send in your original system disk.

We're still requesting copies of those fantastic newsletter pages created with TPA and fonts for our "master" collection. Remember to send fonts on 5.25 media and a postpaid mailer if you want 'em back.

We have arranged a special purchase price for the combination of TPA and Fonts Disk 1 it is only available through dealers who support the 99/4A. In the Chicago area call: HUNTER ELECTRONICS (312) 766-9503.

A SMALL PRICE TO PAY

THE PRINTER'S APPRENTICE	22.50
BUSINESS GRAPHS 99	15.95
TPA FONTS DISK ONE	11.50

This ad was completely created using only THE PRINTER'S APPRENTICE, Copyright 1986 Mike McCann all rights reserved. Requires 32K, Disk System and either E/A or Extended BASIC. Compatible with TI-99/4 printer, Gemini 10X, and Epson compatible graphics printers including Panasonic 1091, Star NX and IBM. To order send check or money order to McCann Software P.O. Box 34160 Omaha, NE 68134.

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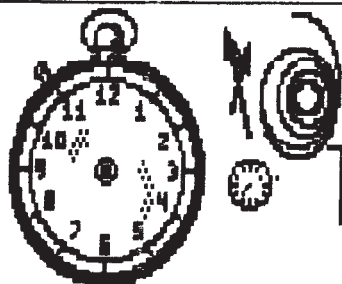
The Beginners SIG will meet shortly after the meeting.

The Pascal SIG will meet shortly after the regular meeting.

MEETING DATES FOR THIS COMING YEAR ARE AS FOLLOWS:

MAR 14	SEPT 12
APRIL 4	OCT 6
MAY 2 (Ironwood Room)	NOV 7 (TI FAIRE)
JUNE 6	DEC 5

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THE DISASSEMBLY

Dave Wakely

See how we run; The last meeting; The next meeting; Excuuuse me!; Future directions; Other Things;

Some of you may have noticed an increasing disparity recently between what is announced in this newsletter as the upcoming meeting program, and what actually goes on in the meeting. We don't plan it this way, it's just that sometimes a large amount of coordination must go on between those organizing the meetings prior to the actual date. Sometimes things don't go as planned, and lately this has seemed like the majority of the time. It might help if you understood exactly how the program meetings come about, and a little history will illuminate the problems involved.

Several years ago, when TI was still with us and the group and 99/4A console sales were growing like crazy thanks to Bill Cosby and \$100 rebates, it was not difficult to find presentations for the monthly meetings. For example, when Wico, Inc., the joystick manufacturer located in Niles, announced a new series of TI compatible joysticks and a trackball for the 99/4A, we called them up and they sent representatives to our meeting to give a demonstration. I recall similar demos by Scott, Foreman of educational products; the TI learning center in the Merchandise Mart, etc. Funware, when they were producing TI modules, used to send us cartridges to demo and then give away at meetings. In short, it was easy, and we frequently saw TI products before almost anyone else.

Starting in 1983, when TI copped out, we were thrown back on our own devices. Overall, and perhaps compared to smaller TI Users' Groups which do not have our resources, I believe we have done rather well, but then, since I am on the committee which schedules the presentations, I may be biased on this point. What we, and presumably every other TI Users' Group has had to do, is present products and services which meet the continuing needs of the users. For example this sometimes means getting 3rd party TI software or hardware to demonstrate, other times it may be helping a group of users to understand the workings of TI Writer or Multiplan.

In the last few years, we have discovered several formats of meetings which apparently are quite popular with our users. These include of course our annual TI Faire, as well as the programming contest, the Swap Meet, and, based on the reaction last June, the Auction. This leaves us six meetings at which to show products or demonstrate procedures. Sometimes something special, such as the upcoming printer demo (see below), will come along, but it is up to us to schedule the rest, and this can be a formidable task. How do you do a presentation which will appeal to most of the 200 or so people who come to the meetings, and who is to decide what that will be? For lack of volunteers to attempt to do this, it was decided a few years ago that the former group presidents would form a committee and arrive at a consensus as to what gets scheduled. This presently means Jerry Strauss ('81-'83), Dave Wakely ('84), Sam Pincus

('85), and Butch Goldstein ('86).

We can read MICROpendium or get on Compuserve to see what is current in the TI community, but mostly we need YOUR input as to what you want to see, and even whether you would be willing to show what you have or are doing, to the group at large. When this last factor is considered, certainly one group member who has been most helpful over the past year has been Jack Topham (see below), who has given us concise and useful presentations of many software programs. We have also relied heavily on librarians John Behnke and Bob Demeter to show us what the group library has to offer. Without these people, you would probably see the former presidents doing some sort of soft shoe shuffle at many of the meetings. To avoid this possibility, we could use more Tophams, Behnkes, and Demeters. If you have a program or use some hardware which you think would be of interest to us, see one of the former presidents and, believe me, we will do our best to get you some time at a meeting.

LAST: As some examples of the above, at the February meeting Jack "The Demonstrator" Topham showed us version 2.0 of PC-Keys. Some of you may remember that a few years ago I reviewed the original PF-Keys in this column after purchasing it at the '84 TI Faire. At that time, although I liked it a lot, I suggested several enhancements it could have used. Lo and behold, those very enhancements are now in version 2.0 of this useful program! If you don't recall, PC-Keys is a "terminate-but-stay-resident" program for the TI, the first of its kind, I believe. After it is loaded it "returns" to the TI Extended BASIC environment from which it was loaded. It has a number of functions which can then be used even from within a BASIC program. For example, you can call up a disk catalog program WITHOUT having to exit your current program and load a catalog program from disk. It also has a screen dump program which will put what is on your screen on your printer. The name, however, comes from its ability to "pre-program" your control keys, such that by hitting CTRL and a number key, commands such as "RUN" and "OLD DSK1.LOAD" will pop up on the command line at the bottom of the screen, so that you do not have to type them in, but merely hit ENTER to execute them. Nifty.

New in version 2.0, however, is the addition of a pop-up calculator and pop-up notepad, much like "Sidekick" for the IBM. With the right key sequence a picture of a calculator will appear on your screen which you can then use to do calculations, and similarly with a different key sequence, a "notepad" will pop up on which you can type in short notes or messages. While these features are limited to operation within Extended BASIC, many of our us use XB extensively enough to want these features. To be able to do this in TI Writer or Multiplan, for example, would probably be much more difficult, due to the way these programs operate. In TI Writer, for example, the EDITA1 and EDITA2 programs "take over" the console and allocate memory locations for its own use. While it MIGHT be possible to rewrite these programs to recognize and execute interrupts, you already have a disk catalog program from within TI Writer, and do you really need a screen dump of a TI Writer screen? Perhaps most useful would be if some way could be found to use the PC-Keys functions while operating with the popular Funlwriter package, so that they were available with everything which runs under it. But then, there I go again, suggesting upgrades to an excellent program which has just gotten even better. I sure hope author Jim Kryzak isn't taking this personally. Perhaps best of all, from the information Jack presented, current owners of PC-Keys can obtain an upgrade to this new version by sending just \$5.00 and the original disk to: Techni-Graphics, 1058 Perda Ln., Des Plaines, IL 60016.

The last time I spotted one of their ads in MICROpendium, the original price was \$22.50, but check with them for current price. Overall I would say that Mr. Kryzak has another winner here.

After this demo, Mike "The Frogman" Maksimic ran his p-Code card through its paces in an overview of its functions. Apparently there are a number of group members who have had p-Code cards sitting in their P.E. Boxes without knowing what to do with it. Mike has an impressive knowledge of how the system operates, and is willing to work with p-Code owners to help them get more from their investment. I understand that a S.I.G. (Special Interest Group) will be meeting on a fairly regular basis, and will be announced in the newsletter.

Also at the meeting, librarian John "The Fuzz" Behnke showed off two more library disks, one packaged as a "demo" disk and the other as a "diagnostic" from TI. John gave his usual inspired and enthusiastic demonstration of these programs. At one point I had to leave the meeting room briefly, and I am told that I missed a demo by Stephan "The Misfit of Oscience" Meyers, who showed his "Junk Man Jr" game, which word has it will be produced as a module by DataBioTics. And finally (see all that you missed if you weren't there?) group member Jim DiNovo presented a short HEX-DEC-BIN conversion program he wrote and which came about as the result of a puzzle. It seems that in talking to a friend who is also a computer enthusiast Jim was given a decimal number to convert to hexadecimal. Using his thought process as a guide to how to decode this, Jim wrote the program only to discover that the hex answer spells the name of his friend! There are some who say that BASIC is just the language for these "quick and dirty" type problems, and it is often the only programming some of us do. Along these same lines I recall a few years ago that Jim came up with a short calculation program that, because of interpreter rounding errors, would give the correct answer ONLY on a 99/4A, while a Commodore and an Apple II both gave incorrect results (so take THAT!).

NEXT: At the March meeting the folks from Competition Computer in Milwaukee will be coming down to put on a demo of printers and to teach us how to care for them. This will include cleaning, as well as simple maintenance and repair. They have also told us that there will be a representative from Star Micronics with them who will help Gemini printer users with some chronic problems. Apparently, early Gemini models fail to print the first column or two of dots from a "cold start", resulting in a ruined page. It is my understanding that the Star representatives will help those in attendance to correct this problem during the meeting itself, so if this is occurring to you, bring your Star Micronics printer with you to the meeting. Now how's that for service?

COLUMNIST EATS WORDS, GAGS: Well, I guess it's true that some people out there really do read this column. I could tell when a few people at the last meeting asked me if I was now in the employ of Triton Products after my comments about the Turbo XT computer last month. Suffice it to say that I got the point. After telling you about some of it's (announced) features last month and some reasons to get it, this time I will tell you why you DON'T want to buy one. I am prepared to consider that I am doing this not so much because you can't decide what to do for yourself, as much as to get me out of the TI doghouse.

If you were to question some of our group members, you would probably find that few had "planned" to spend as much on their 99/4A system as they have. Most people will report that they originally purchased their 4A

console "to learn about computing"; "for the computer games"; "as a hobby", "education for my kids"; etc. It was usually after that initial purchase that owners began to realize how much more could be done with a P.E. Box, second disk drive, printer, etc. I am speaking here of owners who have had a 4A system for a few years, not those who more recently purchased an entire system from someone. The point is that these users "built" their systems up to do something specific, such as word processing.

The fact that these people are still in this Users' Group says something about this set-up "working" for them in satisfactory ways. For many of you, for now at least, the 99/4A may be all the computer you need. I continue to see various surveys which suggest that most people use their "home" computers for functions such as personal word processing, financial analysis or record keeping, or for recreational purposes. I have never seen a list of such functions which included something which couldn't be done on the 99/4A.

The Triton Turbo XT, an IBM clone, will also do these things, but with a different operating system, meaning none of your current software will run on it. The point then becomes: If you already have what you want, why even bother with anything else? An argument can be made in favor of several IBM points here, and let's take them one at a time. 1) Speed. Reply: Compared to what? Did you really know your 99/4A was slow before someone told you it was slow? This scenario suggests that we all groaned with disappointment the first time we saw console BASIC and just knew that precious seconds of our lives were being wasted by GPL interpretation, didn't we? And of course, everything we use is in console BASIC, isn't it? 2) Graphics. Reply: I don't know where they got this one, but I can report you got this right the first time. Just try to program complex color graphics in IBM BASIC. Go ahead, I'm waiting. Okay, they've got the Microsoft Flight Simulator. I'll give them that. 3) "Power". Reply: For what, and at what price? I have seen dBASE III+, an IBM data base program, "discounted" to \$399. It can probably handle a gazillion records at once. You have that many items to index? I don't. Also, I just love the ads for expensive IBM word processors, which state things like, "You could write a book with it!". Of course you can, and you ARE writing lots of books, aren't you? 4) Better keyboard. Reply: What, again with this? I've covered this in a previous column. The TI keys are the same size and just as far apart as on an IBM, there just aren't enough of them. So get a Rave 99 if it really bothers you. 5) Features. Reply: Uh, okay, there may be a few things here I'd like. How about 80-columns of text, please! How about more memory, even more colors, and better graphics resolution. (Hint: How about a Myarc 9640?).

The point of this is not just that I can argue both ways, but that there are many who are confused about the availability of an IBM PC option, and what they should do about it. If you found yourself agreeing with most of the points above, it may be that your current 99/4A suits you just fine. If you want even more from your TI system, then for even less money than the Turbo XT, the Geneve 9640, which should be available about by the time you read this, may be the way you want to go. Of course, those with sufficient funds may want to go both ways. What I am hearing from some users is that those of us who MUST use an IBM or clone in our work have been wondering for some time what to do, and the Turbo XT now gives an option. I don't know how large a group this will eventually be, but I hear that Triton has run out of brochures describing the system. Expect this option, however, to have little if any impact on your 99/4A system.

if the information we have so far about the machine is complete. Perhaps a guiding principle should be: Assess what your needs are, and use what fits them, not what someone says you "should" have. Still, there are tough choices to be made, and expensive ones. Even the supposedly "dead" TI computer world just doesn't stand still, and I suspect that is somehow all to the good eventually. So, am I forgiven yet?

BACK TO THE FUTURE (PLANS): For some time now our group has been a not-for-profit organization, so registered with the State of Illinois. We are going to go one step further, all the way to "tax-exempt" status. There are several good reasons for doing this, only one of which is to avoid taxes.

Side note to other TI Users' Groups: You might want to check more closely on your current tax status. Does your group have funds earning interest in a bank? Are you aware that the bank is mandated to send estimated tax payments to the government on interest earned? And, whose taxpayer identification number are you using? Are you a registered organization in your state, with your own number? If your group maintains funds somewhere, are you filing income tax statements with the IRS as required? Be careful, as it is at least possible that group officers could be held liable for unpaid tax or even prosecuted by the IRS for failure to file. Alternately, your tax liability might actually be less than the amount than is currently being withheld. Is there a CPA in your group who could help you out?

It was to avoid some of these problems that the Chicago group obtained official, not-for-profit organization status in the first place. By obtaining tax-exempt organization status, we will owe no tax, and items such as dues and donations to the group may be tax deductible by the membership. As it looks now, we may try to file as an "educational institution". This will even make us eligible for grants and other services to these types of organizations. The catch: Typical costs to legally establish such an organization run to \$2000, but we have already managed to obtain one quote much lower than this. Before we proceed, we are looking for a member of the Chicago TI Users' Group who is a CPA and who is willing to put in the time needed to help us obtain this status with minimal cost to the group. The group will pay all filing costs, but these are usually far exceeded by the professional costs involved. If you are familiar with the procedures for this type of organization and want to help your group, see us at the next meeting. More news on this as it happens.

Somewhere in this newsletter is the new group survey. Several times in the past we have asked our membership to list their equipment, which software they use, and what they want the group to do. The present survey is more comprehensive than any we have done in the past, and will serve as our planning guide for the future. While it is 6 pages long, consider filling it out as your way of helping to decide the future direction(s) of the group. As it indicates, bring it with you to the next meeting or mail it in. The results will be published in the newsletter when a sufficient number have been compiled. We hope to have this completed before our summer break.

SubrouTimes: Yes, the annual Programming Contest is on. Your entries must be received by the April meeting. This year there are no predefined categories, send us your best programming effort in any language. Past winners have been those programs which in the opinion of the judges have

the most appeal to the largest number of members. We will be awarding up to \$300 in prizes, split among a maximum of 5 winners. If there are a small number of entries, we will award a smaller number of prizes...Does anyone know what ever happened to: Charles "The check is in the mail" Ehninger; OSCAR; Gary "I have no competition" Kaplan; Mini-Mag 99??? Just asking...Please note that there were no references to Texincia Lubbock or Grant Schmalgemeier in this column this month...Oops...This newsletter will be exactly five years old next month. Amazing!... Quote of the month: If I wanted an IBM I would have bought one!

WHAT'S AHEAD: Sam Pincus

What's Ahead?

I sure hope you enjoyed our February meeting. As you know, our users group tries to put on a good "show" every month. But to do that, it takes work AND the help of our group members. Below is an outline of what we have blocked out for the rest of the year. We are looking for people to help us fill out our schedule by volunteering to give demonstrations of hardware you may have bought, software you purchased or wrote, or even of uses you have found for your computer that others would be interested in. If you want to be an instant celebrity, just get in touch with Butch Goldstein (our newest Past President), Sam Pincus, or Dave Wakely at the next meeting and tell us what you want to present.

MARCH: Remember, it's March 14. Competition Computer from Milwaukee will be here with a representative of Star Micronics. They will demo some new printers. They will also replace the print head on early versions of Star printers that had a problem with wiggly lines (caused by the first print character not properly lining up). So if you think you qualify for the replacement head, BRING YOUR STAR PRINTER to the meeting. In addition, Jim Dinovo says he will give a presentation of some sort of check writing program. Submit your programs for the programming contest. See Dave, Sam or Butch to enter the contest.

APRIL: Dave Wakely hopes to demonstrate the special Turbo XT using the TI keyboard being offered by MG. He put one on order as soon as he heard about it and they promised to ship to him as soon as possible. We will also demo 2 or 3 of the latest and best additions to our software library. Remember to submit your contest entry.

MAY: The annual programming contest. We want as many submissions as possible so we are not going to have any categories. We will offer prizes for ANY program that we receive that deserves one regardless of language or age of the submitter.

JUNE: The 2nd annual auction. 'Nuff said. BE THERE!

SEPTEMBER: Help! We've got nothing planned.
(Editor's Note: Sam's article does not appear in its entirety. The article as he uploaded it appeared as a NOM TI file and we were only able to read a limited amount.)

BASICALLY YOURS

Rich Klein

This is my second start on this column. I had half a page written when suddenly, a strange tone emanated from my monitor speaker and the cursor ceased to blink. I guess the console connections are getting a little old. Oh well.

Before we get started again, I'd like to restate one of the purposes of this column. I was intending to do this for a while and I guess now is as good a time as any. The reason for it is for new members and people who may have forgotten. The original purpose of this column and still one of the major reasons for it, is to provide solutions to problems you may have while writing programs in Basic or Extended Basic. All that is necessary is that you send a letter to:

BASICALLY YOURS
c/o CHICAGO TI USER'S GROUP
P.O. BOX 578341
CHICAGO IL. 60657

You can also call our group's Bulletin Board at (312) 966-2342 and leave it in the Upload section for the newsletter. Be sure to state the intention of your file and, in either case, send as much pertinent information as possible so I can be as much help as possible.

Speaking of letters, I did receive one at the February meeting. It goes as follows:

Dear Rich,

In my recently received membership material your name is listed for BASIC and Extended BASIC programming questions.

My question regards coding for the use of disk head cleaning kits. I have not been able to locate (XB or Assy ?) code to insure contact of the head with the cleaning "disk" for a controlled time for the cleaning operation. A good procedure might also move the head along the vertical access slot during cleaning and consider both single and double sided drives.

If available, I would appreciate receiving information on implementing the head cleaning timing coding (and possibly any other hints on proper use of the drive cleaning kits).

*Thank you.
E.B.C. Member #640
Buffalo, N.Y.*

As much as I would like to help you with a basic routine, the way disks are accessed, an error would be generated and the program would halt before any cleaning could be done. However, help is as far away as your Disk Manager 2 module (PHM 3089). Just follow your disk cleaning kits instructions faithfully and use the DM2 module to "initialize" your "disk". If your drive is double sided, then "initialize" a double sided "disk". Since the DM2 module doesn't verify until initialization is complete, your head(s) will have been in contact with the disk cleaner for more than enough time to get the job done. Don't overdo it, though. Many disk drive cleaners are abrasive to some extent and, if so, premature head wear could result. Use a "premium" product

and follow directions exactly.

I haven't got a whole lot I can discuss this month due to time restrictions. Usually I write this column between the last meeting and the fifteenth of the month, that being the deadline to submit articles. Since the last meeting fell on the seventh, this only left me a week to do this. On those months I try to come up with something light in nature which doesn't take too long to explain. At the same time, I try to keep it interesting. Sometimes this can be difficult.

Here's something I hope will be of some interest. Have you wondered how, when a point is placed on a specific location on the screen, the program knows the exact right place to put it? If you have, then this topic is for you.

Of course, the person who wrote the program you used then "told" the computer via the program he wrote, how to place the point at a specific location based on specific input received. If you have a working knowledge of geometry, then the math required for this should be somewhat clear to you. It is simply taking an angle and a distance and plotting the X-Y coordinate for that point. In plotting points, an X coordinate indicates how far to the left or right a point is in relation to a specific reference point and is expressed in units. The type of unit used is immaterial as long it is constant. The Y coordinate indicates how many units above or below the reference point a plotted point is. These X and Y coordinates are then combined to indicate a specific point anywhere in a two dimensional plane (the surface of a piece of paper or monitor screen, for example).

This may sound more difficult than it really is. Imagine a piece of graph paper. Number the center vertical line, 0 (zero). Number the other vertical lines to the left and right of this line progressively greater with the numbers to the left being negative. Each of the lines is an X coordinate. Number the center horizontal line 0 (zero). Number the adjacent lines sequentially greater with the lower lines being negative. These are your Y coordinates. Place a point anywhere on the paper and take the number of the nearest vertical line and then the nearest horizontal line. These are the X-Y coordinates of that particular point in reference to the center of your paper (0,0). It's as simple as that.

If you use the center point of your paper as the center of a circle with a radius equal to the distance between center and the point you plotted, and you also think of the line extending from center to the right edge of your circle as being measured as zero degrees, then, if you go from zero degrees [counterclockwise] around the circle to your point plotted, then the degree of that arc and the distance of your point from center can be used to identify the location as well. X-Y coordinates which identify a point are called Rectangular or Cartesian coordinates (longitude, latitude), while an angle and a distance as coordinates are called Polar coordinates.

Since Rectangular and Polar coordinates can be used to identify the same point, then some conversion must be possible to go from one to the other. Using the Sine and Cosine math functions, these conversions become possible. To convert from Rectangular (X-Y) to Polar (Angle, Length), the following apply:

Radius=Square root of (X squared plus Y squared), or;

$R = \sqrt{X^2 + Y^2}$

Angle=Arctangent of Y divided by X, or;

$A = \text{ATAN}(Y/X)$

To convert from Polar to Rectangular coordinates the following apply:

$X = \text{Radius times the Cosine of the Angle, or;}$

$X = R * \text{COS}(A)$

$Y = \text{Radius times the Sine of the Angle, or;}$

$Y = R * \text{SIN}(A)$

As you can see, the math to accomplish this is not too complex. It's not even really necessary to understand the how and why these formulas work. Just memorize them or write them down for future reference. Each of the formulas were written down in longhand and then duplicated as a Basic statement. They are complete, except for one major omission. The TI computer doesn't use degrees to represent angles. It uses divisions of the value of PI to represent angles, or RADIANS. One circle contains 360 degrees or 2π Radians. That is, if you multiply PI times 2, then that number represents the number of Radians in a circle (6.283185307).

Since most of us don't think of circles in terms of PI, we must convert Degrees to Radians before we use the computer to evaluate and solve our equations. If you divide 360 by 2π , you get 57.29577951, which is how many degrees one Radian is equal to. So we can get the formula:

$A = A / 57.3$

This will convert an angle in Degrees to an angle in Radians. Then the computer will "know" what you are talking about and give you a proper answer when you use the above equations.

Since the computer screen uses Row and Column values when displaying graphic characters, Polar to Rectangular conversions are all that is necessary for programming. However, the screen coordinates are laid out differently than our X-Y coordinates are. While the screen starts rows at the top and increases the number as you go down it, and the columns are numbered left to right, the X-Y coordinate system requires column numbering to go the same way, row numbering to increase as you go [up], and zero to be in the center of the screen, instead of on an edge.

To accomplish this, it is necessary to add an offset to any X-Y values before they can be placed on the screen. For example, if you want to plot an X coordinate of five on the screen and your zero point is at column sixteen, you would simply add sixteen to your value of X (5) to get 21 and place your point in column 21. This is five points away from the zero point. To plot a Y coordinate, you must take your zero point and subtract your Y value from it. Let's say your zero point is on row 12 and your Y value is -3. If you subtract -3 from 12 ($12 - (-3)$), the result is fifteen, which is the row your point would be placed on.

If you take your X point of five and your Y point of minus three, add your offsets so they can become valid screen coordinates, you get $X = \text{Column } 21$ and $Y = \text{Row } 15$. Then if you do this:

CALL HCHAR(15,21,CHAR)

your point will appear on the lower right area of the screen, and if you placed a zero point on the screen location previously discussed, the X-Y point will appear at (5,-3) relative to that zero point. One thing to also notice, is that the HCHAR statement requires Row and then Column information which is opposite the way the X-Y coordinate system works. This means that you must specify the offset Y value before the offset X in the HCHAR statement.

```
CALL HCHAR(Y',X',CHAR)
```

I've taken the liberty of writing a short program to illustrate what's been discussed here. It takes your Angle and Distance from zero, converts it to X-Y coordinates, offsets them for the screen, checks them for errors and then displays the point on a simple graph in its appropriate position. It then beeps to indicate readiness for another input and waits for a keypress and starts over again. Here it is:

```
100 CALL CLEAR
110 CALL CHAR(96,"0101010101010101")
120 CALL CHAR(97,"FF")
130 CALL CHAR(98,"FF01010101010101")
140 CALL CHAR(99,"0303")
150 INPUT "ANGLE, DISTANCE FROM ORIGIN (0,0 TO QUIT): ":AN,LN
160 IF AN+LN=0 THEN 380
170 IF (AN<0)+(AN>360)=0 THEN 200
180 PRINT ::"BAD ANGLE":
190 GOTO 150
200 AN=AN/57.3
210 X=INT(LN*COS(AN)+.5)
220 Y=INT(LN*SIN(AN)+.5)
230 X=16+X
240 Y=13-Y
250 IF (X<1)+(X>32)+(Y<1)+(Y>24)=0 THEN 280
260 PRINT ::"OUT OF SCALE":
270 GOTO 150
280 CALL CLEAR
290 CALL VCHAR(1,16,76,24)
300 CALL HCHAR(13,1,97,32)
310 CALL HCHAR(13,16,98)
320 CALL HCHAR(Y,X,99)
330 CALL SOUND(-250,1392,0)
340 CALL KEY(0,K,S)
350 IF S=0 THEN 340
360 CALL CLEAR
370 GOTO 150
380 END
```

Explanations:

```
100 Clears screen
110 Defines character used for vertical line of graph
120 Defines character used for horizontal line of graph
130 Defines character used for centerpoint of graph
140 Defines character used for plotted point on graph
150 Input prompts for Angle and distance from zero. Note that this is a double
    variable INPUT statement and requires the first input, a comma, and then the
    second input [before] ENTER is pressed. Not doing this will warn you of the error
    you just made and prompt you to try again.
160 Adds the values of AN and LN to see if you entered zero for an angle and distance.
    If so the program ENDS.
170 This is the first error trapping line. It checks that the angle is valid and if
    so, skips over the next two lines to 200
180 Prints the error message "BAD ANGLE".
190 Goes back to the Input line so you can re-enter valid data.
200 Converts the angle to Radians so the computer can work with it.
210 Converts the angle and distance to the X coordinate. Generates an integer value.
```

220 Converts the angle and distance to the Y coordinate. Generates an integer value.
 230 Adds screen offset to X
 240 Adds screen offset to Y
 250 Second error check makes sure the points plotted are within the boundaries of the screen. If so, skips over the next two lines.
 260 Prints Error message "OUT OF SCALE"
 270 Goes back to the input line to input a proper Distance. The way this is set up, you can enter a distance of about sixteen units. Fractions are acceptable, but any fractional result will be truncated before plotting the point. Fractions can affect the value of that integer, however.
 280 Clears the screen.
 290 Displays the vertical line of the graph. If you are going to repeat a character in a linear fashion, the VCHAR and HCHAR statements are the best way to go.
 300 Displays the horizontal line of the graph.
 310 Displays the center of the graph.
 320 Displays the point plotted in the appropriate place on the graph. Notice the X and Y coordinates are reversed.
 330 Creates a "Beep" similar to an input tone to indicate that its ready when you are for another input.
 340 CALL KEY scans the keyboard once for any keypress.
 350 Checks keyboard status to see if a key has been pressed. If not, it scans the keyboard again. This continues until a key is pressed. It's sort of a universal time delay custom tailored to you to let you view the display until you are satisfied with what you see.
 360 Clears the screen after a key has been pressed.
 370 Goes back to get another input.
 380 ENDS the program.

I think that about covers things this time. This has been one of the more difficult times I've had writing this column. My console has locked up so many times during this writing I thought I owned stock in Master Lock Corporation. Luckily, I didn't lose too much any one time. It was still annoying, though. Now that I'm finished, I can afford the luxury of dismantling this and giving the contacts a good cleaning. Bye for now...

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MEMBERSHIP CHAIRMAN SPEAKS

Don Jones

Hi there again, Sports Fans!

I have really been unlucky with this month's article. I just had my good old TI lock up on me with half of my article written and nothing saved. Why do I stay with the darned machine? It must be love.

Speaking of love, I have a short little love poem for a certain lady, Ms. Texincia Lubbock. (For some unspoken and unarticulated reason, I feel that it is most appropriate.)

"Honey is sweet,
Lard is greasy,
Tell me if you love me,
And don't be queasy!"

Well, enough of my belated Valentine's Day sentiments and on to our machine!

I really don't have a heck of a lot to talk about this month (can you believe it?), so I will try to keep this month's article short.

If I may be allowed to digress, I would like to mention that a lot of affirmations of love for our TI have been appearing on our bulletin board. What is it that makes some of us into such loyal, diehard, and committed users (lovers) of this machine? Why is it that this machine continually refuses to die? I don't feel that I am comensurate to the task of answering these questions, instead, all that I can say is, "I love my TI." I am not the first person to say this and I'm sure that I won't be the last.

In spite of the fact that the deadline for the renewing of memberships, with a \$3.00 discount, has passed, the renewals continue to trickle in. At the time of this writing, only 197 people have not renewed their memberships. In order to keep as many of our present members as possible, I have sent postcards out to all members who have neglected to renew their memberships. Hopefully, many of these individuals will reconsider and renew their memberships. If they don't, my new member recruitment drive continues. Last year, we averaged about one new member a day. This means that there are still owners/users out there who don't know about us. Hopefully, with the advent of the two new machines, (the Myarc 9640 and the Miller's Graphics IBM Turbo, with a TI interface), and the many other hardware and software innovations that continue to abound in the TI community, 1987 will be the year that the general public will learn that our machine has never died and that support still continues! Contrary to popular belief, we aren't flying a dodo or riding a dinosaur. We prefer to leave that to Alley Oop.

Since I am writing this article only a few days after Valentine's Day, I would like to express my appreciation to that portion of the members of the TI community that has done so much to help me. I am constantly amazed at the degree of concern and giving that I find manifested in most of my TI brothers and sisters. To all of you who have helped me in the past, I extend to all of you my deepest gratitude. You have convinced me that we

have the greatest support group in the world and the greatest BBS and newsletter too. It is an honor to know, work and deal with all of you. Thank you very much.

Hopefully, by the time that you receive this newsletter, the first of the Myarc and Miller's machines will have been delivered. I am very anxious to have the chance to play with both of these machines in order to see exactly what they can do. Let's give both of these machines a chance before we judge their usefulness.

A little earlier, I was talking about my gratitude to the members who help me with my computer work. Here, I would like to express my appreciation to the fine people, who I shall refer to as, "The Evanston Connection." These people are neighbors of mine who I met through our group, and who don't help me with my machine. Rather, they help me with my work for the group. We all live within walking distance of each other. They are Irv Levinson and Ruth Piepgras. Without their help, I would have resigned my responsibilities to the group a long time ago. Thanks, Irv and Ruth. The importance of your help should not be underestimated. I also want to thank my fine brothers, Paul Farber and Ken Knapp, who help me on the membership table every meeting. I also want to thank Pat Vetter for handling the coordination of the volunteers who have passed out TI information to owners in their zip code areas. I must also thank my brother Al Stump for volunteering to deal with the distribution of the back issues, and I cannot forget Ed Svizzera for volunteering to help me by copying the cassette tapes which are sent out to non-attending members who are still using tapes for their medium of storage. Lastly, I thank Mike Chappell for volunteering to assist me, as my co-chairman, in my duties in coordinating this year's coming Faire. Thanks to all of you for making my life easier and for making my work in the group both rewarding and efficient.

How would you sports fans out there like to feel some real appreciation? Let me tell you how: First, get out your handy, dandy modem and get logged onto some other bulletin boards, which are devoted to machines other than to the TI. Secondly, go out and price some of the software for some of the computers that are still being supported by their parent companies (like Big Blue, for instance). Thirdly, see if you can attend an IBM, Atari, Commodore, or Apple users' group. Let me know what your impressions were, if you are able to find any such organizations (please be informed, they do exist). Lastly, if you can afford both the time and the money, go out and buy yourself another machine. With some, your first question will be, "Where's the floating decimal point?" Can you imagine an executive officer of a computer user group telling you to go out and buy another machine? Has Chrome Dome Jones gone crazy? Has Texincia finally driven me batty? How can I so blithely tell you to go out and buy another computer? The answer is simple; I'm certain that the opportunity to deal with another machine will only cause you to appreciate your TI that much more. I can't help feeling that the prodigal son ended up being a lot more appreciative of his parents and home than the son who never left home. Still, I can't help wishing that no one would ever leave our great TI family.

Speaking of appreciation, I am constantly reading notes of appreciation. As I am constantly receiving letters for the renewal of memberships, I find that many members take the time to write a short statement of appreciation. Here, I will presume to share a few with you.

William Rister of Houston, Texas, writes the following: "Although I am unable to attend the meetings, the money spent for dues is well worth the cost, even if I were only to receive the Chicago Times. You folks are definitely doing something right! Looking forward to bigger and better things in 1987 for our 'lil orphan..."

Lawrence B. Friar, of Yorklyn, Delaware wrote the following note with his letter of renewal: "...I hope this is the first of many yearly renewals of membership in the group. While I cannot usually attend any Group functions, I find that I can schedule a business trip to Chicago that will let me attend the TI-faire this year. This should let me put some personalities and faces together with the names I have been seeing in the

newsletter. I'm looking forward to at least saying hello to some of you who are making the Group and newsletter so effective. Keep up the good work; some of us non-programming users really do appreciate the efforts!"

Lastly, Eddy C. Carroll, of Cocoa, Florida wrote this with his letter of renewal (in September): "Your "Summer" issue just arrived. I'm overwhelmed with the fantastic job that you guys and gals are doing with your newsletter and all of the other projects you have undertaken. 72 pages WOW!!..."

"I suppose you don't want to read all I have to say since I'm sure that you have your hands full just taking care of your job as membership chairman, but when you get tired of my chatter, you can turn it over to someone else to finish. I'm just so enthused about your activities that I have to get some of it off y "chest." CAROLIE, RUIZZ, JAY, SAWNY, NICK, BOB DEMETER, RICH KLEIN, DAVE WAKELY, JOHN BEHNKE, - OH HELL!!! There seems to be no end to the list of great talent that you have in that corner of our great country. Oh, Jeeze! I almost forgot to mention how much I have enjoyed "TEXINCIA LUBBOCK."

"This is a real chore for me as I'm a "hunt and peck" typist, and I still have to compose another letter to your admirable librarian, Bob Demeter. Can't wait to get some of that good stuff that he's advertising.

"Keep up the good work!"

One thing that I can say to all of you sports fans is that when you take the time to express your appreciation, it means a lot to those of us who are working to support both you and the machine that we all love. As Carole says, "Since we support you, you had better support us, or we won't be around when you need us!"

Well, Sports Fans, it looks like that's about it until next month. Until then, keep on crunching those numbers and letters!

CHICAGO AREA TI99/4A USERS GROUP
SUMMARY OF CASH TRANSACTIONS
JANUARY 1-JANUARY 31, 1987

	TOTAL	FAIRE	LIBRARY	MEMBER- SHIP	OTHER
RECEIPTS	1,694.98	0.00	485.00	1,027.00	182.98
DISBURSEMENTS:					
MAILING	135.77			106.16	29.61
ADVERTISING	248.50			123.50	125.00
DISKS	470.10		355.80	99.00	15.30
PRINTING	660.93			10.33	650.60
INSURANCE	255.00	255.00			
RAM DISK--BBS	180.00				180.00
ROOM RENT	200.00	200.00			
SUNDRY	535.49		17.28		518.21
	2,685.79	455.00	373.08	338.99	1,518.72
DECREASE IN CASH	-990.81	-455.00	111.92	488.01	-1,335.74

PROCESSED DATA: Sandy Bartels

I would like to thank all those in attendance at the December meeting that gave me such an amazing vote of confidence in my election by acclamation. I know that my job as president will be that much easier with all that support out there.

Now on to business. Your Executive Committee is involved in the following projects to enhance the effectiveness of your group. Len Rovner asked the Committee to consider applying to the IRS for Qualifying for not-for-profit status which would enable the group to save money on taxes owed by the group. The fee for preparing the proper documentation would be approximately \$500 dollars. The Committee considered the expenditure, but tabled the proposal, because time for the meeting had run out. Nancy Rauch (my good friend) has agreed to succeed my husband Jon as Group Secretary, who had to step down due to an increased work load. Group member Alan Schoen has agreed to review the group's new insurance policy. Thanks Alan.

Our work-aholic Membership Chairman Don Jones will be mailing out reminders to those members that have not renewed. Don also announced at the Committee meeting that he would deem it a privilege to accept the post of TI-Faire Chairman for the year 1987. Unanimous and very loud approval followed this announcement. Don said the group's membership now numbered 710 members, as of the 10th. Attendance at the last meeting was 160 card carrying members, this did not include their families. Mike Chappell has volunteered to assist Don in his administration of this year's Faire, obviously another work-aholic. According to John Behnke the group's library is now up to 100 disks, and a new library listing will be published as soon as possible, because our supply has dwindled to below 100 copies. John and Carole Goldstein (Newsletter Editor-in-Chief) will be working on a book to be entitled "The Best of the Chicago Times" they propose to publish a bound 200 page collection from the pages of the Times.

John Behnke indicated the need for a new disk drive for the group's BBS. The Committee considered proposals and selected the purchase of a Horizon Ram Disk to aid in speeding up the user response time during DDG sessions.

Your Executive Committee is implementing a telephone answering machine somewhere in the Chicago area to aid those members of the group who do not have the means of contacting the group BBS for the latest up-to-the-minute group and meeting information, the flood of '86 indicated the need for this type of device, to insure that our members did not waste their time attending meetings that were cancelled the day before. This group phone service will also give our non-attending members the opportunity to contact the group by voice about problems, suggestions, or comments they have about their group and their machine. The Executive Committee hopes to have this system up and running within the next month or two, and we hope communications between members will become more regular and beneficial.

I would like to ask all group members that have group equipment in their possession, to write down the description of the equipment, and the serial numbers. I need this information recorded to make any kind of insurance claim on the group's equipment in case of casualty loss. Please comply with this request, your home owners or renters insurance may not cover the group's equipment, and we would not care to have the opportunity to find out. The time you take, may be the money you save.

ATTENTION: All TI Users Groups. I have some fantastic news. At the 1986 TI-Faire in November, there was an open forum for visiting group members. During this open forum I made it known that our group had asked for, and received thousands of mailing labels from Texas Instruments Inc. free of any charges, to be used for our group's membership recruitment. With the understanding that these labels could not be used for any purpose that involved the sale of goods or services for profit. I advised the attending visitors

that I did not have the contact persons name or address with me, but promised to publish the information in our next Chicago Times newsletter. I also advised the audience that I did not know if Texas Instruments would be gracious enough to still continue this service to TI users groups.

I am delighted to report that Ms. Rosanne Frigo of Texas Instruments called today (1/13/87) to say that since her address was published in the November-December issue of the Chicago Times, she has been inundated with requests for labels. She had no idea there were that many TI groups out there, still interested in expansion. Although distributing labels to users groups is not her main job, it is rapidly becoming the part of her job that is taking the most of her time. Ms. Frigo states that TI is still willing to extend themselves to the groups, and will still deliver address labels to those groups requesting them. The same usage rules apply as stated above. If you do request labels for contacting TI owners in your area, she does insist that all requests include the ZIP CODES for the area you desire labels, this will speed processing, and help make her job a little easier. I pass this information on in the spirit that it will be used to benefit kindred orphanages, and request some restraint, by having groups ask for only those Zip Codes you know can be contacted in a reasonable length of time. I am sure you will not want to spoil this good thing for the rest of us.

For those of you who did not receive, or have since (EGAD!) mislaid your November 30 - December 1, issue of the Chicago Times, you can still make your label requests to: Ms. Rosanne Frigo - TEXAS INSTRUMENTS Inc. - P.O. Box 225621 - Mail Station 3654 - Dallas, Texas - 75265.

Ms. Frigo asks that all requests for labels be made in writing, and not by phone, because of the extra burden this makes on her time. That's all for now, Sandy.



SOFTWARE REVIEW

Jack Tophan

Mike McCann (remember BUSINESS GRAPHS 99?) has released one of the most productive programs to date for the full TI99/4A system. I have reported on CSGD III and FONT WRITER which both received wide acclaim. Now comes THE PRINTER'S APPRENTICE or TPA, which offers the serious graphics student the most powerful and precise tool to date for formatting the printed page. The program is complex but can be mastered, and then makes logical sense as you use it's powerful utilities.

TPA is designed to use all the graphics capability available on your printer (EPSON or GEMINI compatible), including QUAD density for those with a GEMINI 10X for example. There are FOUR basic modes; CHARACTER EDITOR, PICTURE EDITOR, FORMATTER, and SCHEDULER. I'll try and describe each to give you an idea of what TPA does.

First, an overview. TPA comes on a FLIPPY and should be copied onto two separate disks right away with the original held in safe keeping. Two drives lets you save a lot of disk swapping, but TPA tells you what and when if you have only one. The CHAK EDITOR allows you to DESIGN and/or EDIT FONTS for later use by the SCHEDULER. Because TPA deals in High Resolution, several FONTS are included to get you started. An optional disk of 10 more FONTS is also available. They are 11 to 24 Point and

more detailed than TI ARTIST FONTS for example. DESIGN features are extensive and allow both Single Strike and Over/Under Strike CHARACTERS. This feature allows minute editing and filling using a technique common to NLD printing. You can update a SS FONT to an OU FONT. I cannot imagine what you might want to do with a CHARACTER that TPA won't handle. CHAR EDITOR allows you to type strings line by line and have them printed using any selected FONT. LM, RM, SPACE SIZE, INTER-CHAR SPACE, and DENSITY are all under your control.

The PICTURE EDITOR was designed to take advantage of the host of RLE, GRAPHX, and TI ARTIST pictures that abound as well as to be a full featured editor to make your own. TPA will load a PIC file saved in the P format. When loaded, you can Dissect, Flip, and Print the picture as well as Save it as a file for later use. PICS can be printed in a choice of densities limited only by your printer model. You can also "Clip" a part of a CHAR on the screen to be saved for editing in the CHAR EDITOR.

These two EDITORS as well as the FORMATTER are used to prepare files in the "Extrn" format for use in Scheduling the printed page. The FORMATTER allows you to load TI WRITER files as TEXT. TPA allows Hyphenation, Right Micro Justification, Choice of FONT and Margins, ETC. Again, the work is saved as a File for use by the SCHEDULER. The result will be beautiful, proportionally spaced, near letter quality text! So let's get to the last utility.

The SCHEDULER is where you tell TPA where to print everything. A DISK utility lists all the TPA files and you begin by selecting the ones you will be using. FONT(s), TEXT(s), and GRAPHIC(s). These are set up as active PAB's for use in scheduling. Next, you Edit each one by where you want the upper left corner. TPA will tell you the SIZE and where the lower right corner will be. When finished, the SCHEDULE should be Saved, then the page printed.

TPA comes with a script to follow thru each of the four utilities to aid in learning. Unfortunately there are several typos that prevent early success. Feel free to call me for the corrections. You should have version 1.04 which includes a one page addendum. For \$22.50 TPA is a good value. Mike has indicated that an updated manual is in the works which will make learning easier.

MC CANN SOFTWARE
P.O. BOX 34160
OMAHA, NE 68134

MASS TRANSFER 4.1 is out. It now has Print Spooling as well as Screen Dump. The PHONEMAKE utility adds PCP defaults to the PHONE(n) file. Yes, PHONE is now PHONE1 thru 8. MASS TRANSFER is now perfect. Stu Olson has outdone himself. DOCS are clear and complete. His old buddy GARY has upgraded PHONEMAKE to PHONEMAKE1 which makes generating the PHONE files for PCP even easier. It's on TI NORTH. If you aren't using MT 4.1, your working too hard. If you haven't sent \$ to Stu, you should be locked up!

Ol' Jim Kryzak has updated PC-KEYS again. Version 2.0 is fantastic. Right off it is far more reliable and offers much more. Loads in XDAGIC into high memory were it lurks waiting to be used. CTRL 1 thru 9 call up RUN, LIST, NUM, RES, CALL CLEAR, RUN "DSK1.LOAD", NEW, LIST "PIO", and SIZE. CTRL 0 calls up a Utility Menu. The menu offers: CATALOG(disk),

2X PRINT, PRINT, CALCULATOR, NOTEPAD, and EXIT.

These can be called anytime, program running or not. You can window a Calculator in the upper right corner similar to a hand held one. Computations are made in the exact order that you enter them. NOTEPAD is a mini editor that allows notes to be printed anytime. Operation follows the E/A Editor. Some ten 1/2 length lines are windowed in the upper left corner.

For those without a MYARK disk controller, you can Catalog a disk with your XB program in memory or even running! The screen dump will print horizontally or vertically if 2XPRINT is selected. The CTRL 1 thru 9 commands can be easily changed and saved as your defaults. SETUP also allows you to change and save screen and text colors, printer type, and graphics codes. If you have an EPSON, you have nothing to change for printing.

If you bought an earlier version, the upgrade is \$5.99. For first timers, the cost is \$23.99 but worth the cost. I do wish the disk could be copied. I really want it on my RAM DISK for ready access. Prices include S/H and a 19 page manual.

TECHNI-GRAPHICS
1058 PERDA LANE
DES PLAINS, IL 60016-5724

Before closing I want to again mention Barry Traver's GENIAL TRAVEler. Vol 1 No 4 is out and WOW! Utilities to add more words to CALL SAY in XRBASIC. A super MULTI PLAN template for income tax, several utilities by our own Todd Kaplan, HEXDECMEM converter utility, and the latest Extended Extended Basic. Adds 39 additional CALLs to XRBASIC and the only real competitor to STAR. Vol 1 No 5 is promised to have a number of programs using XRD. This month's disk has all the files and source code needed to generate your own custom CALLs. It is hard to imagine not subscribing to such a value. \$30 for 6 100% full FLIPPY disks. That's \$5 each for 720 fabulous sectors.

THE BASIC ASSEMBLER

Steve Peacock

DEMONSTRATION OF HOW TO USE THE JOYSTICK

This month I am presenting a program that will demonstrate how to use the joysticks. Two new codes are introduced, they are KSCAN and MOVb. KSCAN is the routine that reads the joysticks. It will also read the keyboard. MOVb stands for MOVE Byte. This command moves the left (most significant) byte of a word. For example the command -MOVb [>8374,R1]- will move the left (most significant) byte that is in the address >8374 into the left (most significant) byte of R1. The value in >8374 is not changed. This is used when you want to compare two values, as you can see in this month's program.

If you have an assembly program written for the MINI-MEMORY and want to type in using the EDITOR/ASSEMBLER, you will have to convert some numbers to mnemonics. Below is a table that lists the changes.

MINI-MEMORY	EDITOR/ASSEMBLER
>6018	GPLLNK Link to GROM Routine
>601C	XMLLNK Link to ROM Routine
>6020	KSCAN Keyboard Scan
>6024	VSBW VDP Single Byte Write
>6028	VMBW VDP Multiple Byte Write
>602C	VSBW VDP Single Byte Read
>6030	VMBR VDP Multiple Byte Read
>6034	VWTR VDP Write to Register
>6038	DSRLNK Link to Device Service Routine
>603C	LOADER Tagged Object Loader
>6040	NUMASG Numeric Assignment Routine
>6044	NUMREF Get Numeric Parameter
>6048	STRASG String Assignment Routine
>604C	STRREF Get String Parameter
>6050	ERR Error REporting Routine

For example if you had a line that looked like this -BLWP [X6024-, it would be changed to -BLWP [VSBW-, for the EDITOR/ASSEMBLER.

```

100 REM PROGRAM BA4B=>Basic Assembler #4 Basic Version
110 REM DEMONSTRATION OF HOW TO USE THE JOYSTICK
120 REM (C)1985 S. PEACOCK
130 REM YOU MAY WANT A 'CALL CLEAR' HERE
140 R=10
150 C=13
160 CALL HCHAR(R,C,88)
170 CALL JOYST(1,X,Y)
180 IF Y<>4 THEN 230
190 IF R=1 THEN 170
200 CALL HCHAR(R,C,32)
210 R=R+1
220 GOTO 370
230 IF Y<>-4 THEN 280
240 IF R=24 THEN 170
250 CALL HCHAR(R,C,32)
260 R=R+1
270 GOTO 370
280 IF X<>4 THEN 330
290 IF C=32 THEN 170
300 CALL HCHAR(R,C,32)
310 C=C+1
320 GOTO 370
330 IF X<>-4 THEN 170
340 IF C=1 THEN 170
350 CALL HCHAR(R,C,32)
360 C=C+1
370 CALL HCHAR(R,C,88)
380 GOTO 170
390 END

```

```

*****
*
*PROGRAM BA4A==>Basic Assembler #4 Assembly Version
*DEMONSTRATION OF HOW TO USE THE JOYSTICK
*(C)1985 S. PEACOCK
*
*****
      REF  KSCAN,VSBW  *KEYBOARD SCAN/WRITE SINGLE BYTE TO SCREEN
      DEF  START      *START OF PROGRAM
START  LI   R0,300     *START POSITION TO PRINT 'X'
      LI   R1,>5800    *LOAD HEX CODE FOR 'X' INTO REG. 1
      BLWP [VSBW      *PRINT 'X'
      LI   R1,>0100    *>0100 FOR JOYSTICK NUMBER 1 (>0200 FOR JOYSTICK #2)
      MOVB R1,[>8374  *MOVE LEFT BYTE (>01) INTO THE ADDRESS >8374 (KSCAN)
LP      BLWP LKSCAN    *BRANCH TO KEYSCAN ROUTINE
      CLR  R1          *CLEARS REG. 1 WHERE THE VALUE >8376
*****WILL BE PLACED. RIGHT BYTE ZERO WILL BE ZERO FOR
*****COMPARISON.
      MOVB [>8376,R1  *CHECK 'Y' RETURN. WHEN THE JOYSTICK IS USED THE 'Y'
*****RETURN WILL BE PUT IN THE ADDRESS >8376. THIS VALUE
*****IS MOVED INTO REG. 1. THE 'Y' RETURN CAN BE
*****>FC, >00, >04 (-4, 0, 4)
      CI   R1,>0400    *IF 'Y' RETURN >04 THEN JOYSTICK PUSHED UP
      JNE  T1          *JUMP TO NEXT COMPARISON IF 'Y' RETURN NOT
*****EQUAL TO >04
      CI   R0,32       *TO SEE IF TOP BORDER IS HIT. THE LARGEST POSITION
*****POSSIBLE IS 32 (TOP RIGHT)
      JLT  LP          *IF TOP BORDER HIT GO BACK TO MAIN LOOP AND READ KSCAN
      LI   R5,>2000    *IF NOT HIT, LOAD 'SPACE'
      BLWP [VSBW      *PRINT 'SPACE'
      AI   R0,-32      *DECREASE PRINT POSITION ONE ROW
      JMP  PG          *JUMP TO PRINT
T1      CI   R1,>FC00   *IF 'Y' RETURN >FC00 THEN JOYSTICK PUSHED DOWN
      JNE  T2          *JUMP TO NEXT COMPARISON IF 'Y' RETURN NOT
*****EQUAL TO >FC00
      CI   R0,735      *TO SEE IF BOTTOM BORDER IS HIT. THE SMALLEST POSITION
*****POSSIBLE IS 735 (BOTTOM LEFT)
      JGT  LP          *IF HIT GO BACK TO MAIN LOOP AND READ KSCAN
      LI   R5,>2000    *IF NOT HIT LOAD 'SPACE'
      BLWP [VSBW      *PRINT 'SPACE'
      AI   R0,32       *INCREASE PRINT POSITION ONE ROW
      JMP  PG          *JUMP TO PRINT
T2      MOVB [>8377,R1 *CHECK 'X' RETURN. WHEN THE JOYSTICK IS USED THE 'X'
*****RETURN WILL BE PUT IN THE ADDRESS >8377. THIS VALUE
*****IS MOVED INTO REG. 1. THE 'X' RETURN CAN BE
*****>FC, >00, >04 (-4, 0, 4)
      CI   R1,>0400    *IF 'X' RETURN >0400 THEN JOYSTICK PUSHED RIGHT
      JNE  T3          *JUMP TO NEXT COMPARISON IF 'X' RETURN NOT
*****EQUAL TO >0400
      LI   R8,31       *SEE :START AT TOP RIGHT POSITION COMPARE THIS VALUE
RL      C    R0,R8      *IF :WITH THE VALUE OF REG 0 (THE MAIN PRINT
      JEQ  LP          *RIGHT :POSITION) IF EQUAL JUMP OUT OF THE LOOP. IF
      AI   R8,32       *WALL :NOT ADD 32 (1 ROW) AND COMPARE. DO THIS
      CI   R8,768      *IS :UNTILL THE BOTTOM RIGHT CORNER IS REACHED.
      JLT  RL          *HIT :IF NO HIT, LOAD A 'SPACE' AND PRINT
      LI   R5,>2000    *LOAD 'SPACE'
      BLWP [VSBW      *PRINT 'SPACE'
      INC  R0          *INCREASE PRINT POSITION ONE COLUMN

```

```

      JMP PG          *JUMP TO PRINT
T3   CI R1,>FC00      *IF 'X' RETURN >FC00 THEN JOYSTICK PUSHED LEFT
      JNE LP          *JUMP TO TO MAIN LOOP. NO OTHER COMPARISON TO MAKE.
      LI R8,0         *SEE :START AT TOP LEFT POSITION COMPARE THIS VALUE
LL   C R0,R8          *IF :WITH THE VALUE OF REG 0 (THE MAIN PRINT
      JEQ LP          *LEFT :POSITION) IF EQUAL JUMP OUT OF THE LOOP. IF
      AI R8,32        *WALL :NOT ADD 32 (1 ROW) AND COMPARE. DO THIS
      CI R8,737       *IS :UNTILL THE BOTTOM RIGHT CORNER IS REACHED.
      JLT LL          *HIT :IF NO HIT LOAD A 'SPACE' AND PRINT.
      LI R5,>2000     *LOAD 'SPACE'
      BLWP [VSBW      *PRINT 'SPACE'
      DEC R0          *DECREASE PRINT POSITION ONE COLUMN
PG   LI R1,>5800      *ASCII CODE FOR 'X'
      BLWP [VSBW      *PRINT 'X'
*    LI R4,4000      *A SHORT :TO SLOW DOWN THE PROGRAM
*    DEC R4          *DELAY :REMOVE THE THREE ASTERISKS.
*    JNE $-2         *LOOP :
      JMP LP          *BACK TO READ JOYSTICK AGAIN
      END

```

FROM OTHER ORPHANAGES

Jack Tofham

A bunch of good stuff from the CLEVELAND AREA 99 UG NEWSLETTER: They remind us that if you want a very neat printout of a BASIC or XB program to use Danny Michael's NEATLIST. We have it in our Club library. List all the variables and the lines they are on as well as a list of all the statements used.

You can alter the cursor color simply by including a CALL COLOR(O,X,Y). Y is background color and X the Cursor color that you want.

Press FCTN V when saving an XB program and you will save the program with an invisible name. You can load it using the correct name.

Press FCTN X ten times at any menu screen in TI Disk Manager II and you will invoke a proprietary protection routine on the disk that you initialize so it cannot be copied by another TI DMII module.

Since files deleted from disk are not really erased, you can retrieve them using DISK MASTER or DM1000 IF you have NOT written anything to the disk.

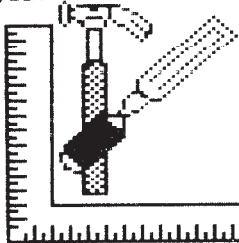
John Hamilton of the CENTRAL IOWA UG offers a 22 page booklet of TI TIPS for only \$4. Write CIUG at BOX 3043, DES MOINES, IA 50316.

In their December Newsletter, they reviewed a program that came with the last Disk of GENIAL TRAVELER. (Vol 1 No 4). The disk contains a file that adds 86 more words to CALL SAY in XBASIC. And, if you have TI's TEXT TO SPEECH program, you can add as many as you wish. This utility was long overdue. No longer do you need the TEII and be limited to Basic for an expanded vocabulary. I have more to say about this Disk series in my review of software.

SANDY B, ET AL LISTEN UP! These folks gave FIVE 8 and 1/2 by 11 PAGES to cover our FAIRE. Several PICTURES and many words said it all. IT WAS GREAT! They were the folks in the CONNI motor home, remember?

As I peruse the some 150 Newsletters that we receive each month, I am always pleased to see so many articles lifted from our CHICAGO Times. Al, Rich, Dave, John, and even me on occasion. It's a great community, this TI UG.

While TI gave up on the 99 more than 3 years ago, they continue to surprise us all. Forth was one of several gifts given to the UG's of record since that dark day. Now comes a 2 disk set of files aimed at providing a diagnostic package for the user as well as the technician. The disks as well as the documentation are being made available by the UG's at a cost only to cover reproduction. Thanx II. We almost forgive you!



HARD TIMES

AL STUMP

Ok, folks. Here we go, it's now time to finish our 32k console modification. I know that many of you (I hope many are reading this) were very disappointed that part II was not in the January 30th issue. I must excuse myself on the basis of a severe family emergency. This emergency prevented the completion of the article.

Let's get on with our project. Take a brief review of the first article. There were several items that were goofed up by my lack of knowledge of our editors transliteration commands. The UNDERLINE 5 should have been PLUS 5, the arrows next to the capital words were supposed to be on either side of the capitalized words to highlight them, the 23/8 was written as 2 ampersand 3/8, this was supposed to read 2 and 3/8 inches. Last but not least the vertical dashes by 330 were supposed to have been the number sign. For the uninformed, transliteration commands are characters which have a meaning to the formatter and cause it to do things to the printers output. I have not worked with this feature and cannot explain it further. Suffice it to say that I hope no one was inconvenienced by this unfortunate mishap. Let's go on. (By the way I did misspell AREAS, and BESIDES.) Also the last two sentences of the first paragraph on page 28 should be lined out as those wires are called for in the third paragraph on that same page.

The review of the first article is to refresh in your minds the pin numbering for the sockets and I.C.'s as well as the proper orientation for the board as we prepare to complete the project.

To begin our final construction, you will need one item that was not on our list last installment. This item is a gummed label or two. The labels that you use for labelling your disks will work perfectly. The label/s should be cut into strips that you will number from 2-13, 15-19, 21-25, 27, LOMEM and H11-H13, a total of 27 individual labels. The labels should be wrapped around the free ends of the long wires from the board. The number on the labels

should correspond to the socket pin number that the wire is coming from. There are two exceptions to this, there are no numbers for the wires connected to pin 20 of sockets 1 and 2. The wire from socket 1 pin 20 should be labeled LOMEM and the wire from socket 2 pin 20 should be labeled H11. The labels for H12 and H13 can be put on the unstripped ends of the two long wires that were cut but not used previously. This labeling process will enable us to wire the correct wires to the back of the cartridge connector with the board laying "sockets down" on the shield over the main board of the console. Insure that you differentiate between "6" and "9" as you label so that these wires do not get interchanged.

Now that the labelling is complete, let's dress the wires for routing. (Lay them where we want them to be so that during the assembly process they are in the right position.) To do this, pull the wires labelled 22, LOMEM, and H11 away from the rest of the wires. Pull the remaining wires close to the circuit board in two groups, one on each side of SOCKET 1. They should be by the holes at the corners of the board next to the words "CAT. NO.". Using some sort of tape, (I used 2 pieces of electrical tape about 3 inches long.) tape them into bunches just as they cross the edge of the circuit board. The RED and BLACK wires should be included in the bunches. If it is done properly the RED AND BLACK wires will be in separate groups. Now tape the 3 wires together that were previously pulled out, but do not tape them permanently as there are two more wires to add to that small group later.

Let's set the circuit board aside for a while and proceed to disassemble the console preparatory to installing the board in the console.

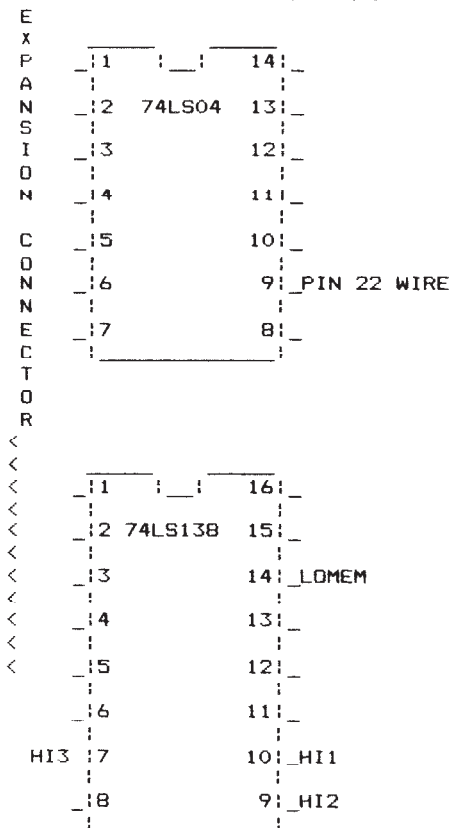
Lay the console, top down on a soft surface, with the keyboard away from you. You will note that there are four screw holes on the far side and three holes on the side nearest you. Remove those screws (7), and put them in the container. Now gently separate the bottom piece from the rest of the console. Beware of losing the plastic on/off switch extension. The next step is to remove the CPU board, it is the one that extends across the back of the console and is covered by sheetmetal. There are three screws holding it down, one on your left about 1/2 inch in, one in the middle 1/2 inch in (it is down in a hole in the sheetmetal, DO NOT DROP IT. Carefully remove the screw so it does not fall out of site. The last screw is on your right near the power supply board (the small circuit board). Put these screws in another compartment of the container. Next remove the tape holding the wires from the power connector against the sheetmetal cover of the CPU board. Push these wires gently aside (to your right). Now we have to remove the two screws holding the power supply board, they are just to the right of the keyboard. Put these screws into another compartment of the container. Gently raise the power supply board up and disconnect it from the CPU board (four brown wires) the connector has a little release that must be squeezed toward the body of the connector to disconnect it. The last step in disassembly is to gently raise up the far side of the CPU board, and with a gentle side to side motion, pull off the keyboard connector. Disassembly is now virtually complete.

We are now ready to remove the CPU board. Raise it up gently by holding the metal in your hands, lift slightly away from your body, this will allow the cartridge connector to clear the parts around it. Lay the console housing aside and turn the CPU board over. Make sure that the board and housing are clean. The little black connector on the right is the cartridge connector and it plugs into another connector on the CPU board. This cartridge connector is where we will connect the wires of the two large groups coming from the circuit board. Our connections will be made by wrapping the ends of the wires around the little protrusions at the back of the connector. Before doing that we have 5

other wires to connect. Please examine the next drawing with care.

MEMORY CHIP SELECT AND WRITE CONNECTIONS

FRONT OF MAIN CPU BOARD



This drawing shows the connections that have to be made to the main CPU board. To make these connections we must remove the metal shield that covers the board. We are about to proceed into an area where ELECTRO STATIC DISCHARGE can cause severe damage. So as a precaution we will only remove the top shield. To remove the shield, position the CPU board so that the cartridge connector is on your left with the open slot facing away from your body. The expansion port is now on your left also. The connector that the modulator plugs into should be on your right facing you. There should be two large nuts on the far right hand corner (by the joystick port). Remove the screws holding these nuts. there is

also a large nut to the left of the cartridge connector, this nut is on a short screw. Remove this screw. Save all the screws, nuts and especially the little washers that you have just removed. Do not proceed until all these parts are accounted for, any one of them dropping down on the CPU board could fry it when power is applied.

We can now make the connections to the main CPU board. To accomplish this we must remove the metal clips holding the shields together on the board. The clips just slide off. Remember which one came from where. Next pull the cartridge connector out of its socket. Lift the top shield off of the board. This should lift off easily with just a little wiggling to clear the brass clips by the expansion port. Insure that your soldering iron is clean and tinned. It is necessary for the iron to be hot for a good connection, because these next five joints must be soldered fast so that excessive heat does not go into the chips we are soldering to. Strip approximately 1/8 inch of insulation from the three wires IOMEM, HI1 and 22. Tin the wire and solder as indicated by the drawing. We have no choice but to solder right to the chip legs as they go down to the board. Make the connections quick and make sure that there are no solder bridges to any adjacent objects.

Now take the two wires labelled HI2 and HI3, cut the stripped end so that only 1/8 inch of bare wire is left. Solder them according to the drawing. Make sure that the labels are on the other end of these two wires. Tape to the main board all five of the wires just soldered to the main board with tape. This is now a permanent connection, so tape them in a couple of spots. Gently bring the wires back toward you and then around the back of the cartridge connector. Insure that they are down near the surface of the board so that the metal of the shield does not cut through their insulation. At the right edge of the cartridge connector, bend the wires back. The shield can now be replaced temporarily. Mark the wires with a marker of some kind, where they will exit from under the shield through the step in the shield on the left side behind the right edge of the cartridge connector. Put some tape on the sharp metal edges to prevent them from cutting through the insulation, and also tape the wires (where you marked previously) again for the same purpose. Between the two layers of tape our wires should be fine. Now permanently put the shield on and check everything so far.

Put the three screws back in and use the nuts and washers we removed to hold them. Next reinstall the two clips on the shields. The cartridge connector goes back on next. We can now lay the memory board in its final resting place. It will be just in front of the back clip with its right edge above the two small phillips head screws on the shield. The left edge must be more than 1 inch from the right edge of the cartridge connector. Let's tape it in place temporarily sockets down. Sockets down will be the normal position.

We can now proceed to wire the remaining two large groups of wires to the back of the cartridge connector. The wires will have to be brought up between the pins on the back of this connector. Solder the bottom connections first. The diagram for these connections will be next. Follow it carefully.

WIRE LABEL NUMBERS

N/C	N/C	27	23	21	24	2	25	3	4	5	6	7	8	10	N/C	N/C	BLK
36	34	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
																	GND
								5V									
35	33	31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1
N/C	N/C	N/C	N/C	N/C	N/C	9	N/C	RED	11	12	13	15	16	17	18	19	N/C

WIRE LABEL NUMBERS

The following is the listing for the test program. This was written by RICH KLEIN of BASICALLY YOURS fame. It MUST be run from basic with either MINI-MEMORY, E/A CARTRIDGE or SUPER-CART in the cartridge port. At the end of the listing I will take you through testing your chips.

```

100 REM *MEMORY CHECKER*
110 REM
120 REM BY RICH KLEIN
130 REM
140 REM FOR BASIC ONLY WITH E/A, MINIMEM OR SUPERCART
150 REM
160 CALL CLEAR
170 PRINT "** MEMORY PROJECT CHECKER **":
180 FOR TD=1 TO 200
190 NEXT TD
200 CALL CLEAR
210 CALL SCREEN(1)
220 FOR A=1 TO 8
230 CALL COLOR(A,4,1)
240 NEXT A
250 CALL CLEAR
260 PRINT "OUTPUT DEVICE (0=SCREEN):":::"MEMORY AREA TO CHECK:" 1. LO-MEM
   >2000:" 2. HI-MEM1 >A000"
270 PRINT " 3. HI-MEM2 >C000:" 4. HI-MEM3 >E000:" 5. SUPERCART >6000":
   "CH
   OICE (1-5):":::
280 PRINT "ERROR PROCEDURE:" 1. LOG ALL ERRORS:" 2. STOP AFTER FIRST ERROR":

```

```
"CHOICE (1-2):"
290 PRINT : : :
300 R=3
310 C=3
320 GOSUB 1310
330 IF K$<>"0" THEN 360
340 FILE=0
350 GOTO 390
360 OPEN #1:K$,OUTPUT,DISPLAY ,VARIABLE 80
370 D$=K$
380 FILE=1
390 R=12
400 C=17
410 GOSUB 1310
420 IF (K$<"1")+(K$>"5") THEN 390
430 IF K$<>"1" THEN 460
440 AD=8192
450 GOTO 570
460 IF K$<>"2" THEN 490
470 AD=-24576
480 GOTO 570
490 IF K$<>"3" THEN 520
500 AD=-16384
510 GOTO 570
520 IF K$<>"4" THEN 550
530 AD=-8192
540 GOTO 570
550 IF K$<>"5" THEN 390
560 AD=24576
570 R=19
580 C=17
590 GOSUB 1310
600 IF (K$<"1")+(K$>"2") THEN 570
610 IF K$<>"1" THEN 640
620 EP=1
630 GOTO 660
640 IF K$<>"2" THEN 570
650 EP=2
660 CALL VCHAR(1,1,32,768)
670 PRINT "CHECKING BK OF MEMORY"
680 IF AD<>8192 THEN 710
690 PRINT "LO-MEM -- >2000"
700 GOTO 810
710 IF AD<>-24576 THEN 740
720 PRINT "HI-MEM1 -- >A000"
730 GOTO 810
740 IF AD<>-16384 THEN 770
750 PRINT "HI-MEM2 -- >C000"
760 GOTO 810
770 IF AD<>-8192 THEN 800
780 PRINT "HI-MEM3 -- >E000"
790 GOTO 810
800 PRINT "SUPERCART --- >6000"
810 PRINT : : "OUTPUTTING ERRORS TO ";
820 IF FILE THEN 850
830 PRINT "SCREEN"
840 GOTO 860
850 PRINT D$ : : :
EXPANSION BEGINNING AT :
```

```
860 PRINT "PRESS ANY KEY TO START"
870 CALL KEY(0,K,S)
880 IF S=0 THEN 870
890 CALL HCHAR(23,3,32,28)
900 PRINT "CHECKING: >";
910 A=AD
920 GOSUB 1180
930 PRINT HD$
940 PRINT "::
950 FOR A=AD TO AD+8191
960 IF A/1024=INT(A/1024) THEN 1010
970 GOSUB 1180
980 FOR X=1 TO 4
990 CALL HCHAR(20,13+X,ASC(SEG$(HD$,X,1)))
1000 NEXT X
1010 CALL LOAD(A,170)
1020 CALL PEEK(A,B)
1030 IF B=170 THEN 1070
1040 GOSUB 1180
1050 PRINT #FILE:"ERROR AT ADDRESS >";HD$
1060 IF EP=2 THEN 1080
1070 NEXT A
1080 PRINT "PRESS ANY KEY TO CONTINUE"
1090 CALL KEY(0,K,S)
1100 IF S=0 THEN 1090
1110 IF FILE=0 THEN 1130
1120 CLOSE #1
1130 PRINT "::"CHECK ANOTHER AREA? (Y/N)"
1140 CALL KEY(0,K,S)
1150 IF S=0 THEN 1140
1160 IF K=89 THEN 250
1170 END
1180 H$="0123456789ABCDEF"
1190 AA=A
1200 HD$=""
1210 IF AA>=0 THEN 1230
1220 AA=AA+65536
1230 FOR X=1 TO 4
1240 NXT=INT(AA/16)
1250 NOW=(AA/16-NXT)*16
1260 HD$=SEG$(H$,NOW+1,1)&HD$
1270 AA=NXT
1280 NEXT X
1290 RETURN
1300 GOTO 1300
1310 K$=""
1320 CALL GCHAR(R,C,CH)
1330 CALL HCHAR(R,C,95)
1340 FOR X=1 TO 5
1350 CALL KEY(0,K,S)
1360 IF S=0 THEN 1380
1370 GOTO 1470
1380 NEXT X
1390 CALL HCHAR(R,C,CH)
1400 FOR X=1 TO 5
1410 CALL KEY(0,K,S)
1420 IF S=0 THEN 1440
1430 GOTO 1470
```

```

1440 NEXT X
1450 GOTO 1320
1460 IF K>31 THEN 1540
1470 IF K=13 THEN 1590
1480 IF K<>8 THEN 1540
1490 CALL HCHAR(R,C,32)
1500 IF C=3 THEN 1580
1510 C=C-1
1520 K%=SEG$(K$,1,LEN(K$)-1)
1530 GOTO 1580
1540 CALL HCHAR(R,C,K)
1550 K$=K$&CHR$(K)
1560 C=C+1
1570 IF C>30 THEN 1590
1580 GOTO 1320
1590 CALL HCHAR(R,C,CH)
1600 RETURN

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We are at the point of discovery. How well did we do? To find out, take two of the 6264LP-15 chips and making sure that the pins line up with the socket holes, (If the pins do not line up, hold the chip at the ends and gently press the pins against something flat to bend them in.) insert them into the sockets 1 and 2. They should go in without undue pressure, and the notches on the sockets should be lined up with the notches on the chips. Completely wrap the ends of wires HI1 and HI2. Tape them to the shield near the circuit board. Tape the circuit board, "chips against the shield", to the shield where we positioned it before. Now reassemble the console carefully. The main board goes first. Be very careful of the cartridge port connector. Use all screws for the inside boards. Then the power supply. Once we have everything together including the bottom (you can get by with a couple of screws in the front and a couple in the back at this point). Now hook it up to your TV and power. Turn it on and look for the title screen. If you have no title screen then there are two potential sources for the problem.

1. ONE OF THE CHIPS IS BAD.. TRY REMOVING THEM.

If you still have no title screen then.

2. THERE IS A SHORT IN THE WIRING.. FIND IT AND FIX IT.

Once we have the title screen then enter the program. Save it to tape and run it to check our chips. Select options 1 and then 2. These tests completing will indicate that our chips are good. Replace any chips that show errors. We can now go back into the console and replace the chips just tested with the remaining two. Repeat the tests for the other two chips. Use the above procedure for solving any problems that might arise.

Now for the final steps. Take it all apart again, and pull the last two chips out. Set the chips in pairs lining up the notches of each set of chips. Try to push them together. They should fit with only moderate force and all pins should contact. If not try pushing them closer as stated before. Once good contact is made between the chips of each pair, we can proceed.

Take the top chip of each pair and with long nose pliers, gently bend out pin 20. Put the chip with pin 20 bent out on top of the other chip again and now prepare to solder again. Treat these connections just as you did the ones on the main CPU board. Solder the pins of the top chip to the pins of the bottom chip, insuring as you do so that solder does not run down the legs of

the bottom chip. Next solder the wires HI2 and HI3 to the pins bent out previously. The pair that has HI2 soldered to the top chip plugs into socket 1, and the pair that has HI3 soldered to the top chip plugs into socket 2. Carefully tape the board chips down, to the shield again. This is the last time so do a good job.

Reassemble every thing and load and run the tests again, this time run all 4 tests. You now have 32k in your console.....

See you at the meeting. I would like to thank the following individuals for their assistance and or documentation which was a great help to me. RICH KLEIN, JIM McCULLOCH AND THE MATCHBOX DOCUMENTATION OF ELSNER AND WEST.

Next month the HORIZON RAMDISK will be the subject....al



FULL DUPLEX

Irwin Goldstein

As promised in last month's addition of Full Duplex, new improvements to our already great BBS would be discussed.

First I would again like to thank John Behnke for his many hours of work each month to make our group's BBS the Best. He has again used his many talents to make improvements that will benefit all users of the system. I will now attempt to explain some of this month's changes.

First, we have added a message read slow down feature that will allow you to determine the speed at which the messages are displayed to you. If you are like me, you find that reading lengthy messages at 1200 baud is simply too fast, especially when in the scroll mode. 300 baud is too slow. By going into the command mode of the message base and selecting the M command, you may choose a speed anywhere between 0 (fastest) to 400 (slowest). I find this read rate adjustment very convenient. Try it and let us know how you feel.

The second feature is a two line minimum description required of all uploaded programs. Many times people will take the time to upload a great program to the BBS but will not take the time to adequately describe what it is they uploaded. I then do not know which section to put it in (1-5) and the users in run do not know what the program is or does before downloading it. For everyone's benefit therefore, a two line minimum description is required before uploading will begin.

A third feature is a rapid name search for those of you who want to leave someone a private message, but don't know their member number. Under this feature (V) you would simply enter their name and the member number will come right back to you. This will save everyone the long romp through the "B" section.

Again, next issue, I will discuss any other changes to the system. Next

month will also tell just how the new phone rate structure will affect the BBS call load. If my instincts are correct, I think it will be much easier for all who want to get onto the board. I think we will have fewer callers and the calls will be short in duration. Only time will tell for sure. I think the ease of access will please many people.

Well, I won't hold this any longer. I hope that the new rates won't keep anyone from calling our BBS in the future. We definitely are worth the price of a phone call. In case you may have forgotten, our phone number is 312-966-2342. We are open 24 hours a day, 7 days a week. We never go down (except when John rewrites the basic).

ODDS N ENDS

BY BILL GASKILL

Some of what you will read here you may have seen before, some perhaps you haven't seen. All of it is simply a collection of ideas, information and tips about our computer, accumulated over the last three years. It is not presented in any particular order, being written down as it came to mind. I hope you enjoy it.

1. TI's Catalog program on Programming Aids I will write a DV/80 file that can be read by TI-Writer?

If you want to create a list of the contents of all your disks, that you can look at later and find anything in the list that you want, you can use this Catalog program to do it.

Simply choose option 4 from the catalog's menu and send the output to DSK1.CAT and each disk will catalog itself and then write a file to itself (named CAT) that can then be loaded into TIW for later reference.

Each CAT program must be merged into the existing file by using the LF function and then specifying a line number after which the new file is to be positioned. For example, if you have the first disk's CAT loaded into TIW and it ends at line 15 you would merge the next disk's CAT file into TIW with the following keystrokes;

Fctn 9- to activate the command mode.

LF and then <ENTER>- to Load File.

1 E 16 DSK1.CAT- to merge the file named CAT from the disk in drive one, encompassing lines 1 to the End of that file, placing it after line 15 of the CAT file already loaded.

<ENTER>- to activate the merge.

Finding which disk contains which program or data file is simply a matter of using the Replace String option from TIW's command mode.

2. A program written in Extended Basic, where you have created line numbers out of sequence, can be made to run faster. You must first SAVE the program in MERGE format, then type in NEW and then re-load the

program using MERGE. The MERGE routine cleans up the program by picking up each line in its proper order, where as your original program's line number table was saved in the order that you created each line in, regardless of the number of the line.

3. REDO can be used to repeat any command typed in at the operating system level (the > prompt) such as SAVE, OLD, PRINT, LIST, CALL INIT, CALL LOAD, DELETE etc.?

4. RUN can be used with CSI to redefine a character set with one program and then RUN another program without "killing" the new character set or robbing memory from the second program being loaded?

5.

```
10 M$="THIS IS MY PROGRAM"
20 FOR I=28 TO 6 STEP -1 :: DISPLAY AT(2,I):SEG$(M$,1,X) :: X=X+1 NEXT I
```

will make the string M\$ appear on the screen from the upper right, in row 2, one character at a time, until it stops in column 6.

6. Danny Michael's NEATLIST program can be used to print out a listing of any Xbasic program regardless of protection status or line number table alteration etc.

7. You can alter the color of your cursor to white on blue (or any other color combination) by including a CALL COLOR(0,16,5) statement in your program.

8. A sub-file can be selected from a memory-resident data file, and saved to disk, by creating an array for the record numbers (array pointers) of the selected records and then saving those records referenced by the array pointers? This is demonstrated by the program DISKFILES in our library.

9. John Hamilton of the Central Iowa Users Group offers a 22 page booklet of TI Tips for only \$4.00?

John Hamilton
CIUG Box 3043
Des Moines, Ia. 50316

10. Bob Lawson offers a FREeware utility that will print out a Household Budget Management file?

Bob Lawson
16223 Mill Point Dr.
Houston, Tx. 77059

11. LIST "DSK1.PROGRAM", where PROGRAM is the name of your program, will create a DV/80 listing of your Xbasic program that can be read by TI-Writer?

12. Pressing Fctn V when SAVE(ing) an XB program will save the program with an invisible name? The underline character is actually what is written to disk (ASCII(95) or >7F), although the delete character (ASCII 127) is what is read. Up to 10 files could be masked on a single disk in this way.

13. Pressing Fcfn X 10 times from any menu screen in Disk Manager II will invoke a proprietary protection routine that will be written on the disk you initialize so that it cannot be copied by another DMII module. If you have Bill Gronos' "Hidden Powers of Disk Fixer" you can read all about it. If you want to see a simpler explanation of how it works, read on. The two diagrams below are the first three lines from a DISK+AID read of sector zero on my NeatList disk.

Sector Zero on an un-protected disk;

ADR- 0 1 2 3 4 5 6 7 8 9 A B

```
00- 4E 45 41 54 4C 49 53 54 20 20 01 68
0C- 09 44 53 4B 20 28 01 01 00 00 00 00
18- 00 00 00 00 00 00 00 00 00 00 00 00
```

Sector Zero on a protected disk;

ADR- 0 1 2 3 4 5 6 7 8 9 A B

```
00- 4E 45 41 54 4C 49 53 54 20 20 01 68
0C- 09 44 53 4B 50 28 01 01 00 00 00 00
18- 00 00 00 00 00 00 00 00 00 00 00 00
```

If you compare both diagrams you will see that the only difference between the two is in byte 16 (>10 if you are into hexadecimal arithmetic). The protected disk has 50 written into that byte (the hexcode for F) where the unprotected disk has >20 which is the hexcode for a blank space. As Mr. Gronos says in his book, the protection is "pathetically weak".

14. Both TRACK-HACK and TURBO2 can be loaded onto your FunnelWriter disk and be RUN from the Utilities option? Press 3 from the main menu. Press 9 and then use option 3 for TRACK-HACK and option 4 for TURBO2. It saves swapping to the E/A module (unless you have Gram Kracker).

15. 4A/TALK can upload DV/80 files to CompuServe TI FORUM in 7-bit ASCII? The results are screen readable but NOT downloadable in readable format.

16. Terminal Emulator III (that's right, 3!) has a very nice CHAR1 file for true lower case letters that is much easier to read and much better looking than the true lower case upgrade that TI put out for TI-Writer?

17. The NEC JC-1225MA color monitor can be used with a TI, even though it is not specified in the instructions? The Red wire plugs into the "Video In", the yellow wire to "Audio Out".

18. A protected XB program on cassette tape can be duplicated using two cassette recorders set to maximum volume?

19. Records/files that have been DELETED from a disk are not actually deleted. Only reference to their existence is deleted, not the actual information.

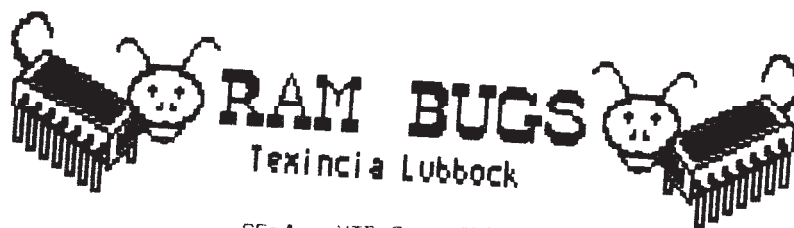
20. J. Peter Hoddie has re-written DM1000 and Fast-Term so that they (either one, not both) can be loaded into GRAMS 1 and 2 in Gram Kracker?

The programs are available on Barry Traver's Genial Traveler 1.3.

21. You can make a message flash or flutter on screen any time you use a CALL KEY statement by including a DISPLAY AI statement in a loop created by the CALL KEY? An example is shown below.

```
10 CALL KEY(0,K,S) :: DISPLAY AT(12,2):"THIS IS THE MESSAGE" :: DISPLAY  
AT(12,2):" " :: IF S=0 THEN 10
```

This is only a short list of the no doubt thousands of "things" TI users have discovered on their own. Maybe you can add to the list?



SF=4 YTD=8 AVERAGE=4.0

First I picked up the phone and waited and waited and waited for ILLINOIS BELL to give me a generous portion of dial tone. Next, I dialed the CHICAGO TI USER'S GROUP'S new INFORMATION TELEPHONE NUMBER, 312-657-1093. There was the usual pause while the contactors in my central office slid up and down the poles looking for the correct step in the switches and FINALLY, I got a computer that sounded like a little old lady telling me, "The number you have reached, 6-5-7-1-0-9-3, may not yet be connected".

SLAM! I thought, haven't these people got their act together yet? Did someone FORGET to place the order. Is there really a location where the number is going to be installed? Did someone at the phone company in my department screw up the order? So I checked! When I entered the number on my terminal in my office and made a customer order inquiry, it said the order was already due. Patience, Texincia, remember, it is the phone company you work for! They, too, are an imperfect organization.

The next day, I tried again. IT WORKED! But all it did was ring. No one home, I thought. So I was patient, again. This time I waited until the weekend. This time when it rang, something answered. It was a voice unlike anything I had recently heard. So I began to think about who it might be? It certainly wasn't MR GRANT. It sounded like an old disk jockey's voice. It wasn't CLARK HEBER, he's still around and not as good sounding as this one.

So I wondered some more who it might be. Then, suddenly, it hit me like a poorly written article by STEPHAN MEYERS - the voice sounded just like FRANKLIN MCCORMICK, you remember, he had the ALL NIGHT PROGRAM on HGN (720 AM) until he died of a heart attack one night on the air. (Oh, how I cried!)

Those days are gone forever, now it's SATURDAY NIGHT LIVE (ON TAPE) when you call the CHICAGO TI USER'S GROUP'S TELEPHONE LINE at

312-657-1073. Your host is ED SVIZERRO. If you're lonely and can't stand the thought of having to call GRANT again, give him a call and say "HI"!

Too bad this issue wasn't out in time for VALENTINES DAY. I had so many people on my list this year that I wanted to remember. In particular, MR SHINNY HEAD whom I think about the most when I sit the longest on the toilet.

Speaking of remembering, would someone PLEASE remember to save CAROLE a decent seat this time?

A special thanks to EDDY C CAROLL of COCOA, FLORIDA for the very kind words about how I add to his expectations in every issue he receives. It's so nice to be thought of in a pleasant way for a change.

I understand JIMMY the GREEK is hedging 10 to 1 for the DEMISE of the TURBO-XT before year's end. BUTCH will have brochures of this abortion at the next meeting. Check also with DAVE HAKELY to see if he has received his "NEW COMPUTER". It should be interesting.

I hope everyone got a chance to read JOHN BENKE'S dissertation of what he feels is wrong in our little organization. Without taking a stand on these important issues, I certainly hope the air will be cleared and this will not be allowed to smolder into a full fledged fire that might destroy the group. Enough said.

It has always been my impression that the OPEN MESSAGE BASE on the CHICAGO TI USER'S GROUP BBS was to be limited to CONVERSATION ABOUT TOPICS OF INTEREST TO EVERYONE who uses the board. Recently, I, and several others have been made acutely aware of the BUDDING ROMANCE between DON JONES and CYNTHIA (thank God for PC Pursuit) BECKER. One user of the Board even went so far as to suggest that we create a SEPARATE MESSAGE BASE so their romance could further blossom. (I wish I would have thought of that one!).

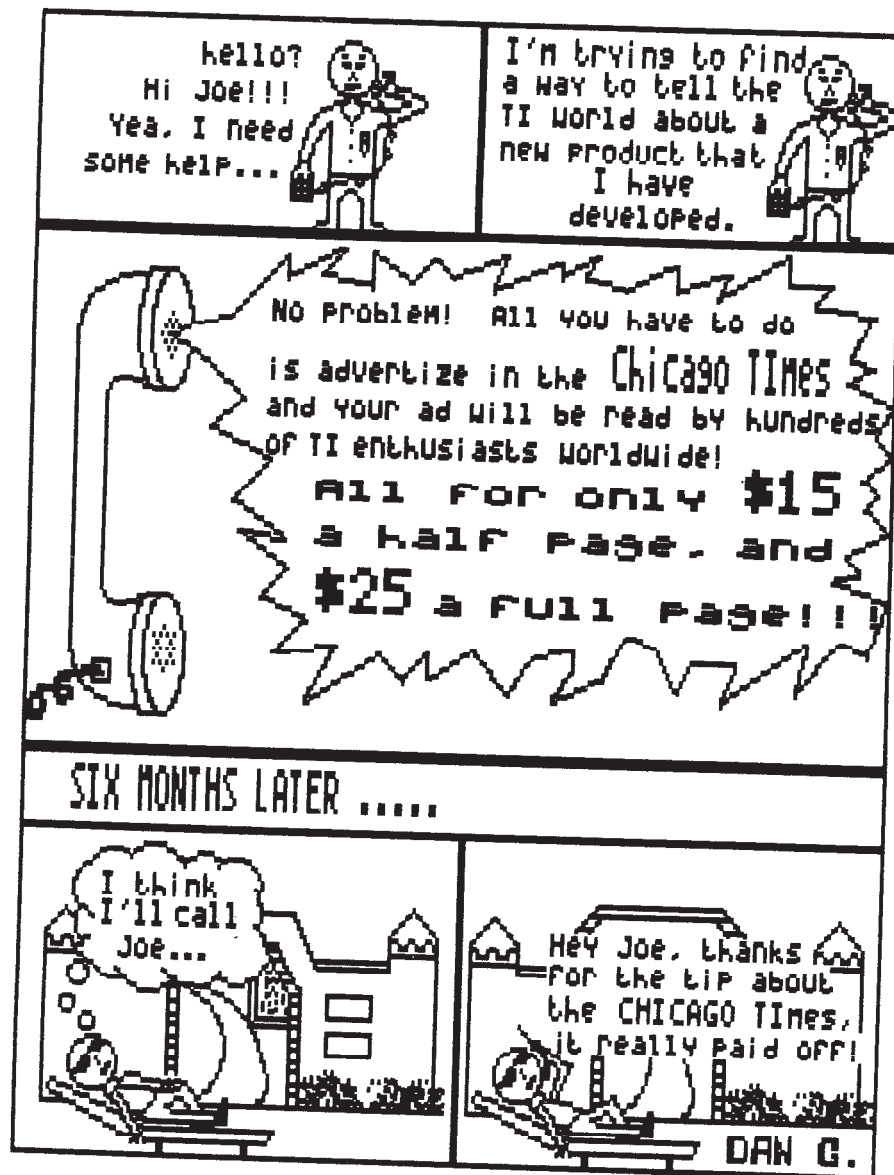
Actually, another message base is UNNECESSARY, as there ALREADY exists a solution to the MESSAGES-THAT-SCROLL-OFF-SO-QUICKLY-YOU'D-THINK-YOU-HADN'T-CALLED-IN-A-MONTH-AND-READ-THE-OPEN-MESSAGE-BASE-PROBLEM. It's called a PRIVATE MESSAGE. Get the HINT, GUYS!!! Use PRIVATE MESSAGES for your romantic conversations, PLEASE!

I understand GOLDEN BOOKS has picked up the option to publish JIM DINOVUO'S HEX-TRANSLATOR/NAME-DISPLAY PROGRAM development story he told at the last meeting. Cute job, JIM!

Remember, this author welcomes letters from her readers. Be careful what you say in them as correspondence to anyone in the group that is sent to our post office box can be subject to censor by the official KEEPER OF THE POST OFFICE BOX KEYS.

Please note that there was no reference to NICK IACOVELLI in this column this month. See YOU at the meeting!

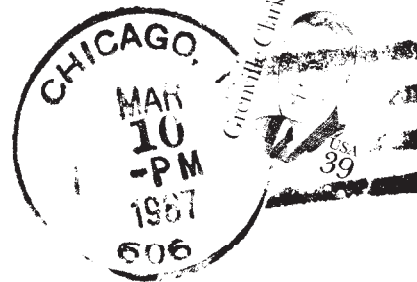




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REMARKS

Carole Goldstein

Last month my article did not appear within these pages. The reason was not one of timing but of space. It is difficult to try to get all the good information that is submitted into a reasonable size newsletter. In other words, every month cannot be a Super Summer Issue. The main reason for this is the cost of putting out this publication.

This month we have all most of our regular columnists back including the continuation of Al Stumps article on adding 32K within the console and Steve Peacock's Basic Assembler. Mike Masimek's article was not included because we ran into problems being able to download it from the BBS.

A note to some of you who use Mass Transfer to upload your articles to the newsletter. Please DO NOT USE the option of Upload DV80 file. This causes the files to be saved as a NON TI file and for some reason they abort upon download.

Also this month I am taking advantage of two of the three volunteers who will be making my job easier. Thanks to Dennis Hathaway, Merwyn Bruhns and Mel Haskell who have volunteered to help me with the proofreading of this newsletter. I was unable to contact Merwyn this month but I will try again shortly after the next meeting. The few hours that you spent giving assistance means a lot to me and to those who read this newsletter. Thanks guys.
